

HAYWARD (Geo.)

An History of the
Erysipelatous Inflammation
that recently appeared in the
Massachusetts General Hospital.



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A HISTORY

Of the Erysipelatous Inflammation that recently appeared
in the Massachusetts General Hospital. By GEORGE
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THE occurrence of erysipelas in this institution, and its occasional appearance there for several months, have excited no small degree of attention, and have given rise to exaggerated and false statements of its extent and fatality. With a view to correct these, as well as to exhibit facts as they really existed, I have been induced to draw up this article.

1. The first case of this disease occurred in April 1826. The patient was a large muscular man of about 25 years of age, from the country, who was admitted in consequence of having been run over by a loaded wagon, a few hours after the accident. The os femoris of the left side was fractured, a deep wound was made on the outside of the right thigh, which penetrated to the bone, and there was a severe compound fracture of the little finger of the left hand, which made its removal necessary. The accident occurred on the 8th. A disposition to gangrene appeared in the wound of the thigh on the 11th, and some marks of erysipelatous inflammation on the surface of that limb. This inflammation continued to increase, and extensive sloughing soon took place from the wound; and though it was dressed twice a-day, and the most powerful antiseptics used, the fetor was nearly insupportable. The patient continued to sink; the erysipelas extended over both lower extremities; the sloughing and offensive discharge increased; he was very restless and in great pain, till two days before his death, when he became comatose, and at length died on the 2d of May. There was reason to believe that he had been habitually addicted to the immoderate use of ardent spirits. The ward was fumigated, before and after his death, with the gas of chlorine, and all means that were practicable while the patients remained in it, were employed to purify it. As soon as he was dead, every thing connected with his bedding establishment was removed, and the

mattress on which he had lain was so much injured that it was never used again in the house.

2. The subject of the second case, a healthy young man, was admitted in consequence of a fracture of the tibia and fibula of the left leg just above the ankle. The accident occurred on the 8th of June, near the Hospital, and the patient was brought immediately there. On the 12th there was some appearance of erysipelatous inflammation about the ankle, and on the 16th it had extended up the leg, and appeared also on the face about the left eye. The disease now rapidly spread, the face and whole head became enormously swollen, a black spot showed itself on the limb near the ankle, and the patient was affected with a violent delirium. These symptoms were unabated till the 26th, when a favourable change took place, and the inflammation gradually subsided, without the occurrence of sloughing. By the 1st of July the disease was nearly gone, but on the 11th there was a slight return, which continued a day or two only, for there was no vestige of it on the 16th ; he was discharged August 2d, perfectly well. It may be perhaps worth while to remark, that during the violence of the erysipelatous inflammation, there seemed to be no disposition whatever in the bones to unite. This patient occupied a ward on a story below the one in which the other patient died, and between the wards occupied by these patients there was no communication.

3. On the 15th of June, a young man labouring under fever, was suddenly attacked with erysipelas, which appeared first in the face, and spread with great rapidity, affecting the eyelids to such an extent as to close the eyes completely. He was delirious from the first appearance of the erysipelatous inflammation, and sunk under it on the 18th. He was of course under the care of the physician.

4. The next case occurred on the 21st of June, in a medical patient, who was just recovering from a severe attack of continued fever, by which he was extremely reduced. The disease showed itself about the face and head, and the patient died on the fourth day after its appearance.

5. On the 27th of June a large tumour, situated near the angle of the jaw, was removed from a healthy woman of about 40 years of age. The operation, from the size and situation of the tumour, was necessarily severe, and the external carotid artery was tied. All appearances were favourable till July 1st, when there was a slight indication of erysipelas on the right cheek under the eye; the wound however continued to look well. On the 2d the disease had extended, and the wound began to assume an unhealthy aspect. The eyelids were so much swollen as to close the eyes, and the patient was delirious. The inflammation continued to increase daily, suppuration took place about the upper eyelids, the wound assumed an unsavourable aspect, and began to slough. On the 8th she was decidedly worse; her pulse was small and rapid; the delirium very much increased; she had had no sleep for forty-eight hours, and refused to take both medicine and food. Some sleep having been procured on the night of the 8th, she was found better on the following morning. She became more rational on the 10th; the inflammation was subsiding, and in a day or two the wound began to granulate; and on the 4th of August, it being entirely healed, she was discharged well.

6. A medical patient, who had been labouring for a long time under ascites and general anasarca to such an extent as to render her case hopeless, but who was in a much more comfortable state than she had been for a length of time, was suddenly attacked on the 21st of July with erysipelatous inflammation on one of the lower extremities. It spread with great rapidity, and assumed a violent character, and proved fatal on the 23d.

It may be proper to remark, that the first case was the only one that had hitherto occurred in the ward in which the disease originally appeared, though all the cases mentioned had been confined to that side of the house.

7. On the 9th of September, however, a man was admitted with a scrophulous disease of the testis, into the room in which the first patient died, and on the 17th he was attacked with erysipelatous inflammation about the ankle of the

right leg. This extended to the thigh, and afterwards appeared on the head and face. It began to subside on the 23d, was very slight by the 26th, and on the 30th he was entirely well.

8. On the 29th of September, a man, of a bad habit of body, with an ulcer of long standing about the tendo Achillis, was admitted into the upper ward of the other side of the house, as remote as possible from the place in which the disease had hitherto appeared. On the 3d of October, erysipelas was discovered on the leg about the ankle, and in course of the day extended up to the groin. It was more extensive on the following day,—the mind was wandering, the pulse feeble and rapid, the tongue parched, and the skin hot and dry. All his symptoms had gradually become worse till the 7th, when vesications appeared on the limb, and he continued to sink till the 10th, when he died. This patient's system was much impaired by intemperance.

9. A medical patient, who was convalescent, was attacked with erysipelas about the right ear on the 26th of October. It extended on to the side of the face and temple, down the neck, and upon the scalp, with considerable redness and swelling, and some vesication. In a day or two the disease subsided in some measure on this side, and appeared in a much milder form on the other. It never assumed a very serious aspect, and entirely subsided by the 31st, and he was discharged well on the 11th of December.

10. A girl, of about 15 years of age, with scrophulous ophthalmia, was affected with erysipelas on the face about the last of October. The disease in her case was comparatively mild, and nothing unusual occurred in the course of it. It continued four or five days only, without any violent constitutional symptoms, and at the end of that period, she was as well as usual.

11. A healthy girl, eighteen years old, who had been in the hospital a few weeks with an ulcer on the leg, was attacked with erysipelas about the head, on the 7th of November. It extended over the whole face in the course of two or three days, so as to close the eyes, and produced an

enormous swelling of the head, attended with deafness. In this case however the symptoms were not of the worst character ; the mind was not in the least affected, and in a fortnight from the attack, the patient had recovered her health entirely.

12. The next case of this disease occurred in an unhealthy man, of a scrophulous habit, 34 years of age, who had his left testicle removed on the 23d of December. For a few days after the operation, every thing appeared to be going on well, and the wound was rapidly healing ; but on the night of the 31st he was seized with a violent rigor, followed by a hot fit, and pain in the right arm, though there was neither swelling nor redness. On the morning of January 1st, the arm was considerably swollen and discoloured, the colour however was much darker than is usual in erysipelas. The pulse was very rapid and feeble, the tongue parched, and the skin hot. In the course of the day he became delirious, and died in the afternoon.

13. A man 32 years of age, who had been in the hospital about three weeks for an abscess on the head, of which he was nearly well, in the same ward with the last patient, was attacked in the night of the day on which the other died, with a chill followed by great heat. In the morning the disease appeared about the head and face, which were much swollen, and almost covered with vesications. The disease began to subside on the sixth day, and by the tenth was nearly gone. During its progress, suppuration took place in the upper and lower eyelid of the right eye, and in the lower eyelid of the left eye, and openings were made in them, by which a considerable quantity of pus was discharged. An abscess also formed on the head behind the right ear, which was opened ; the original one, on account of which he came to the hospital, was on the left side. After all the symptoms of the erysipelas had disappeared, and the patient was about taking his discharge, he was attacked in the night with an epileptic fit, to which he had been subject. He stated in the morning that he had had a slight one the preceding night ; he seemed as well as usual ; a

light diet and a cathartic were ordered for him, and he intended to go home the next day. In the night following he was seized with another fit, and expired in a few moments, before any one in the ward could get to him.

14. On the night of the 6th of January, four days after the attack of the last patient, a man in the same ward, labouring under chronic diarrhoea, in a state of extreme debility, without the slightest prospect of recovery, was seized with a chill, followed by heat, with soreness about the ear. He soon became delirious, and continued to sink, till the afternoon of the 8th, when he died.

15. A healthy man, on whom the operation of tying the external iliac artery had been performed on the 25th of November, was the next subject of this disease. All his symptoms after the operation had been favourable till the 25th of December, when a swelling appeared between the spine of the ilium and the wound ; this suppurated and was opened on the 31st. In a few days after, erysipelatous inflammation made its appearance in the neighbourhood of the opening, extending for a few inches on to the abdomen ; it yielded however soon to the remedies employed, though the wound was slow to heal, and the patient was not discharged well till the 16th of February. This patient was in a part of the house very remote from the three last.

16. A medical patient, in a ward adjoining the one in which the disease first appeared, was attacked on the 7th of January with swelling and redness of a deep colour of the left eyelids. In the course of the day the redness and swelling did not increase, though he complained of great soreness of the face. The erysipelas in this case never assumed a very threatening or severe character, but subsided almost entirely in the course of three or four days. The patient was a man of regular habits and good constitution, and not much debilitated by his previous disease.

17. About the time that the last patient was attacked, a female, in whom the brachial artery had been tied, was affected with erysipelas. It appeared particularly about the arm, though it extended somewhat up the neck, and there

were some slight appearances of it on the body. She recovered in the course of three or four days. It should be observed, perhaps, that she had been in the house several months, and during that period had had several attacks of the disease, all of which however were mild.

Thus it appears that no less than six cases of this disease occurred within a week, three in the ward in which the first patient died, one in the adjoining one, and the other two in remote parts of the house. This was a very large number, when compared with the number of patients in the institution, as it constituted one-tenth of the whole. Hitherto the disease had excited but little alarm, as there had rarely been more than one or two cases at the most at a time, and usually a very considerable interval elapsed between them, so that not a suspicion had been excited that it was owing to any peculiar state of atmosphere in the hospital. The aspect of things was now however entirely changed, and the medical attendants recommended to the trustees, that no more patients should be admitted at present; that all who were in the house should be discharged as soon as it could be done with safety and convenience; and that, if necessary, a house should be provided in the neighbourhood, to receive for a time those who could not be otherwise disposed of. These recommendations were promptly attended to, and on the 15th of January only twelve persons remained, all of whom were on that day removed to a house in Vine-street, in the immediate neighbourhood of the hospital.

The first inquiry then, was, in what way this erysipelatous inflammation had been kept in existence in the house for so long a time, or to what peculiar circumstance was this singular fact owing? The situation of the Massachusetts General Hospital is remarkable for its salubrity and adaptation to the wants of such an establishment; and it will not, I am confident, be thought hazarding too much, by those who have been conversant with its internal arrangement, to say, that in point of cleanliness it may challenge a comparison with the best regulated hospitals in Europe or this country. There was one circumstance however in which it differed

from other institutions of the kind ; I refer to the manner of warming and ventilating it. All the wards, with two or three exceptions, were warmed by furnaces placed in the cellar. The hot air, which was external air heated by the furnace, was admitted at the upper part of the ward, and at the bottom there was an outlet for the escape of the foul air. This was considered better than to admit the air from below, both for the purposes of warmth and ventilation, and it answered the first purpose perfectly at all times, and the other in great measure as long as fire was kept in the furnaces. But when this was extinguished, the patients, to prevent the wards from becoming cold, shut the ventilators, and there being no fire-places in the rooms, there was consequently little or no circulation of air during the night.

The following fact may be mentioned in corroboration of the opinion, that the disease was probably owing to a want of complete ventilation. The alms-house in Leverett-street was, till the erection of the hospital, the only public receptacle for the sick poor, as well as the paupers of the town, and though it was far from being clean, I cannot learn that any case of erysipelas occurred there from the time of its erection till its removal in 1825. For several years I was well acquainted with the state of that house, part of the time as a student of medicine, and a part of the time as the physician, and during the whole of that period there was not a single case of this disease. It is not improbable, that there may have been one or two solitary instances at other times,—it would be remarkable if it were otherwise ; but that it never prevailed there to any extent, I am absolutely certain. The reason of this exemption I conceive to be the fact, that the rooms, in which the patients were kept, were spacious, well ventilated, and had large open fire-places.

In the house of industry at South Boston, on the other hand, which, besides having every advantage of situation, is far cleaner than the old alms-house, and is intended only for the reception of paupers, erysipelatous inflammation, of the same character precisely as that which appeared in the hospital, has already several times occurred. The rooms, ap-

propriated to the sick in this house, are small, have but one window, communicate with an entry warmed by a furnace, and a part of them are not provided with fire-places.

It seems to me to be no objection to this opinion, that several of the cases in the hospital occurred during the summer ; for the windows in the patients' rooms being all closed at night, and there being of course no fire in the furnaces, there was consequently but little change of air. It is a fact also, and certainly a striking one, that not a single case appeared in any room in which there was a fire-place ; and it is not less remarkable, that not a case has occurred in the house since the patients have been re-admitted, though nearly five months have elapsed since it was re-opened, a period of exemption more than double in length of what has existed since the occurrence of the first case,—and during this very period the disease has been unusually prevalent in various parts of the city. This must be attributed chiefly, I think, to the more complete ventilation of the wards ; for the hospital, though perfectly clean, is not more so than formerly, and the number of patients is as great as it has frequently been before.

As soon as the patients were removed from the hospital, the following means were employed by the advice of the medical attendants to purify it, and to prevent the recurrence of the disease. All the matrasses were ripped open, the tickings washed, the hair picked and baked, having been first exposed five days and nights to the air, during which period the thermometer was most of the time below zero, all the windows in the house were kept open for the same length of time. After this, the wards were first fumigated with sulphur, then with the gas of chlorine ; all of them were white-washed, and part of them were painted ; the wood work in those that were not painted was washed with lime water. Fire-places were then made in all the wards, with two or three exceptions only, and these were rooms of a very small size. Fortunately this could be done without much difficulty, as flues were left in the walls originally from an apprehension, that the furnaces might not warm the building sufficiently.

The bedsteads were left out doors, exposed to the weather which was intensely cold for several days, and then carefully washed. The house having been scoured throughout was ready to receive patients, and they were accordingly readmitted on the 3d of February, it having been closed nearly three weeks. As was remarked above, almost five months have elapsed since their return, without the occurrence of a single case. The furnaces are still used to warm the building, and small fires are lighted in the fire-places sufficient only to promote a free circulation of air. The state of the atmosphere is certainly more agreeable in the wards than before the alteration ; it has lost all that closeness, which, at times when the heat was great, was extremely unpleasant, if not unsalutary.

Nothing occurred in the progress of this disease at this time to warrant a belief, that it was propagated by contagion. The second patient was not admitted into the hospital for more than a month after the death of the first, and in no instance were any of the nurses or attendants attacked with it, nor did it seem possible in any case to trace it from one patient to another. An atmosphere, capable of producing erysipelas in those predisposed to it, seems to have been generated by the first patient ; and this was never entirely removed, from the want of sufficient ventilation, till after all the patients were discharged from the house. I am not disposed to deny, in opposition to the opinion of the late Dr Wells of London, as given in his 'Observations on Erysipelas,' in the second volume of the Transactions of a Society for the improvement of Medical and Chirurgical Knowledge, that the disease 'may, sometimes at least, be communicated from one person to another,' though I must confess that nothing has ever occurred under my own observation, that would incline me to think with him.

It would not accord with the object of this paper to detail minutely the medical *character* and *treatment* of the erysipelas, as it existed in the hospital at this time ; a few general remarks on these points are all that I shall offer.

It was evidently a disease of debility, affecting those with

most severity, who were already exhausted by previous illness, or whose systems were broken down by intemperance. Not a death occurred of an individual, who was either not debilitated by sickness, or whose constitution was not impaired by former indulgence in the use of ardent spirits. It seemed to demand, in most of the cases certainly, the treatment first recommended, I believe, by Dr Fordyce, and since so successfully followed by Dr Wells and many other eminent physicians of Great Britain, I mean that of administering Peruvian bark in large and frequent doses, and keeping the affected parts bathed with diluted alcohol.

Evacuants were rarely required; in a few instances, emetics or mild cathartics followed immediately by the bark, were found useful. The bark was not given in such doses as Dr Fordyce speaks of, that is, one drachm of the powder every hour; it is rare, that the stomach will retain it in such quantities, and it is still more rare I believe that such a quantity is required. Dr Wells, a firm believer of the correctness of this practice, never gave it to such an amount, nor did he think it necessary. It is difficult, during the delirium which so commonly attends the disease, to induce patients to take it in this form, and the sulphate of quinine was found to be an excellent substitute. In recurring to the records, the largest quantity of powdered bark administered to any patient with erysipelas, I find to have been one ounce in twenty-four hours; a pint of brandy, however, was taken during the same period. Of the sulphate of quinine thirty-six grains were given in divided doses of six grains each, in the same length of time to another patient. Great use was made of wine, porter, brandy, the infusion of bark and the tincture of the sulphate of quinine as auxiliaries, and in some of the worst cases, these alone were employed, as the patients would reject every thing but liquids.

